CITY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS

DRAFT SITE MITIGATION PLAN
YOSEMITE OUTFALL PRODUCT

Prepared By:

ERM-West
Walnut Creek, California

March 27, 1987

ERM-West
Environmental Resources Management

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Reply To:

March 27, 1987 Rancho Cordova

Mr. Steve Medberry
Division Engineer
Industrial Waste Division
750 Phelps Street
San Francisco, CA 94124

Dear Steve:

Enclosed please find our draft Site Mitigation Plan for the creosote contaminated area for the Yosemite and Fitch Outfalls Consolidation Project.

The report includes a plan summary, plan objectives and approach, and discusses the site history and investigation that lead to the need for a site mitigation plan. Remedial action alternatives, the evaluation of those alternatives, and regulatory requirements are also addressed. Finally, a recommendation and general cost estimates are given.

We will be happy to meet with you and your staff to discuss this plan, and to answer any questions you may have regarding site mitigation for the area.

Best regards,

ERM-WEST

Melita Elmore (for)

Daniel J. Hinrichs
Principal Engineer

ME/lal/204

Enclosure - Noted

SITE MITIGATION PLAN

CONTENTS

CHAPTER 1

SUMMARY

A site mitigation plan was developed for the City of San Francisco Public Works Department to address subsurface creosote contamination encountered in an industrial area included in the proposed 16-block Yosemite-Fitch Outfalls Consolidation project. The specific study area encompasses a 3-block section in the City's Bayview district, and includes portions of Yosemite Avenue, Hanes Street, and Armstrong Street.

A brief review of site history, field investigations, and current site conditions is presented, and analytical data collected on soils, water, and oil product from the site is summarized. Applicable regulations concerning removal, treatment and disposal of on-site materials, and government agencies having jurisdiction are also reviewed.

General response actions aimed at affecting site remediation are described. These we subsequently evaluated through the use of screening factors and the consideration of site-specific conditions and criteria. From these general strategies three basic remedial alternatives are proposed which best accomplish site cleanup in a cost-effective manner while minimizing interference.

Pending a regulatory decision on the classification of constituents present in soil and water on-site, a single option for site mitigation will be recommended.

CHAPTER 2

PLAN OBJECTIVES AND APPROACH

The goal of this plan is to identify a recommended alternative for site remedial action. To achieve this goal, the plan must include the following:

- o Review site conditions
- o Identify/evaluate remedial action alternatives
- o Recommend a cleanup alternative

Beginning with a review of site conditions in Chapter 3, this plan addresses each of the above in a separate chapter.

Remedial action alternatives for the site are discussed in Chapter 4. Each alternative is evaluated based upon primary and secondary screening criteria. Using the site conditions data that are presented in Chapter 3, appropriate general response actions and companion technologies are identified. The technologies are than screened to eliminate those that are unsuitable or infeasible. This is done for both soil removal and disposal, and for product clean-up and disposal. Remedial actions include both on-site treatment and off-site treatment and disposal. Regulatory agencies requirements are also discussed.

The recommended alternative and a tentative cost estimate and schedule are presented in Chapter 5.

CHAPTER 3

SITE CONDITIONS

The City and County of San Francisco, Department of Public Works proposes to construct transport/storage facilities for industrial waste pipes in the City's Bayview area. This project is intended to reduce overflows and will transport wet and dry weather flows to a treatment plant. The proposed project, known as the Yosemite and Fitch Outfalls Consolidation Project, consists of a 16 block area surrounding the Fitch Street, Griffith Street and Yosemite Avenue outfalls. The area is a heavily industrialized zone.

The San Francisco Municipal Code, Chapter 10, Article 20 (also known as the Soil Analyses Code), provides that prior to excavation of more than 50 cubic yards of soil in certain industrial areas of San Francisco, a soil investigation must be undertaken to assess potential hazardous constituents. Prior to any construction, a site history must be determined, and soil (and, if encountered, water) samples must be collected. If hazardous constituents are determined to be present in concentrations above action levels, a site remediation plan should be implemented.

The outfall construction area mentioned above includes soils that consist of fine clayey silt with vegetative debris extending from ground level to approximately 15 feet. Below the silt layer is another level of silt that includes sand and fine oily grit. Below 15 feet, Bay Mud is encountered. Because the site is composed of fill material, the various sand and silt deposits are probably not continuous. Groundwater is brackish in quality and is influenced by nearby tidal channels. No commercial or domestic water use is known. Beneficial use of the groundwater is primarily recharge to the Bay.

The following will provide location details of the area, and will discuss the history of the area, along with a background of the site investigation that lead to the necessity of a remedial action plan for this area.

Location

As shown on Figure 3-1, the outfall project includes a 16 block area surrounding the Fitch Street, Griffith Street and Yosemite Avenue outfalls. The area of concern encompasses a 3 block area including Hawes Street between Yosemite Avenue and Armstrong Street, and is shown on Figure 3-2. City property includes the street easement. To the north, the property is owned by Cruz Lumber, and includes the Yosemite Channel. To the south is a vacant lot and lumber yard owned by E.S. Brush and Sons. The South Basin outfall is to the east, and a parking lot for E.S. Brush is to the west.

Site History

A record search of the area's industries was conducted by Norman Grib, and is included as Attachment 1. The industries that were present either currently or in the past included lumber yards that conducted wood preserving activities. Based on these findings, ERM-West staff prepared a work plan to conduct the soil investigation. The proposed workplan (Attachment 2) was presented to the City of San Francisco in a November 3, 1986, letter. The analyses procedures and protocol were discussed, as were boring locations in this report.

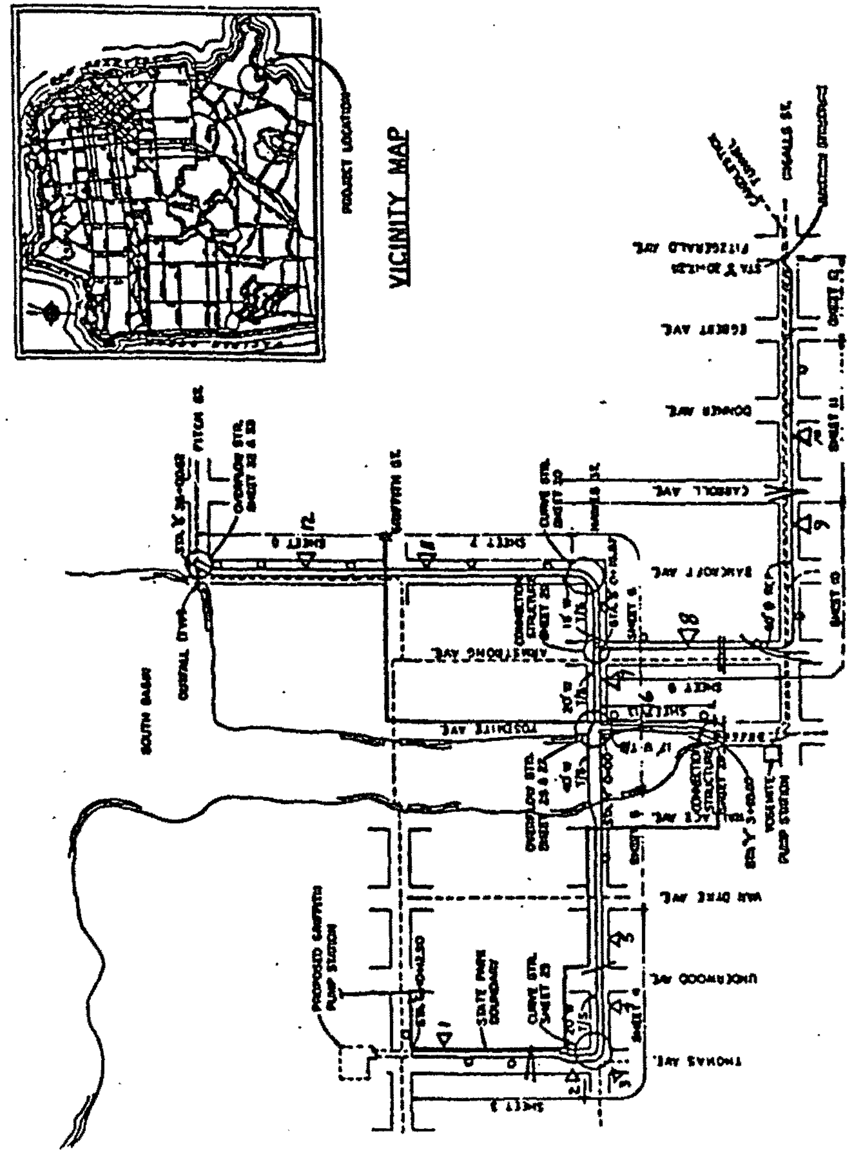

FIGURE 3-1 AREA MAP, YOSEMITE-FITCH OUTFALLS CONSOLIDATION PROJECT

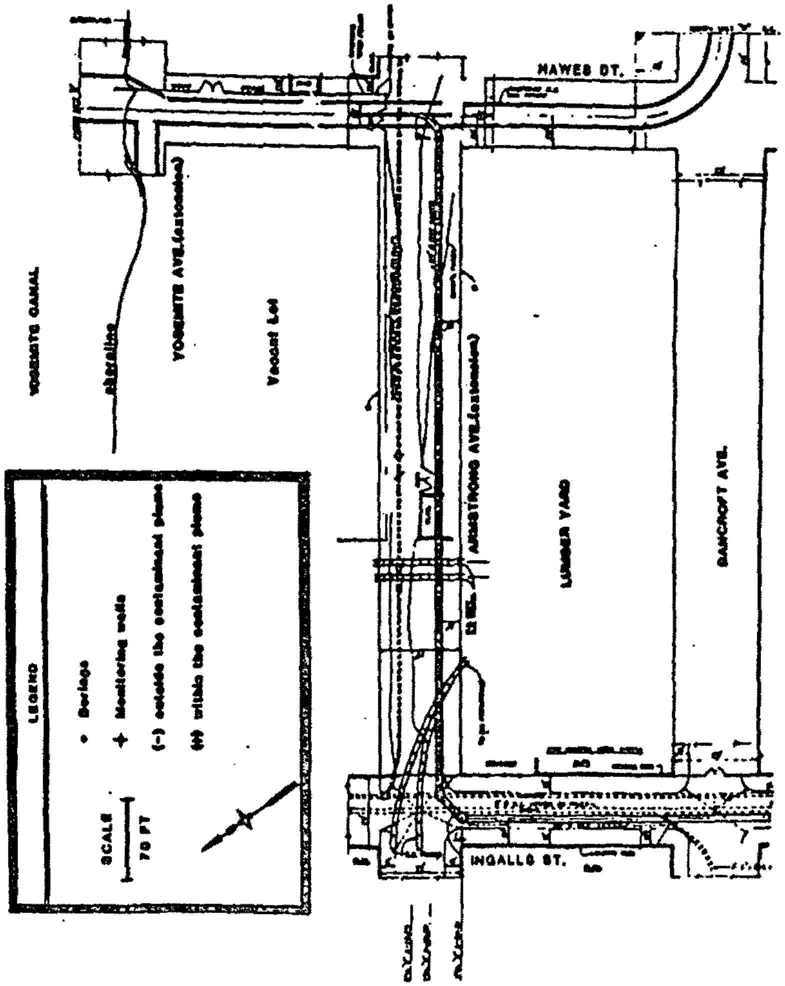

FIGURE 3-2 SITE DETAIL, ARMSTRONG AND HAWES

<u>Site Investigation</u>

On January 16, 1987, ERM-West staff presented soil and groundwater findings to the Department of Public Works in the attached (Attachment 3) report. The results of that report included a discussion of an area, known as Area 2, that encompassed the 3 block area of Yosemite Avenue, Hawes, and Armstrong Streets. Soil concentrations found in this area were determined to be listed, according to criteria in Title 22, California Administrative Code, as hazardous constituents.

In Area 2, samples indicated metals contamination (copper, zinc, lead, and mercury)in the soil, and purgeable aromatics (benzene, toluene, etc.) were found in the groundwater. Additionally in both the soil and groundwater, a black tarry substance was discovered. This material was described as having a creosote odor, and further investigation was deemed warranted. Subsequent analyses revealed the tarry product to be poly-nuclear aromatics; constituents and concentrations of the product and the contaminated soil are listed on Table 3-1.

In order to determine the extent of the creosote plume and in order to assess groundwater gradient, three observation wells were drilled on February 11, 12, 13, 1987 (as shown on Figure 3-3), and further monitoring was conducted. The observation well drilling logs are included in the Appendix.

TABLE 3-1

Constituents	Concentration mg/kg (unless otherwise noted)
Priority Pollutant Metals	
BE	0.4
CD	0.7
CR	50
Cu	94
Pb	76
Ni	46
Ag	0.6
Zn	180
Sb	<0.2
As	13
Se	<0.1
Ti	<0.06
Hg	0.012
Organic Compounds	
Acenaphthylene	0.19 mg/l
Anthracene	1.6 mg/l
Chrysene	0.36 mg/l
Flouranthene	1.3 mg/l
Flourene	0.38 mg/l
Napthalene	2.7 mg/l
Phenanthrene	0.82 mg/l
Pyrene	1.0 mg/l
pH	8.3 pH units

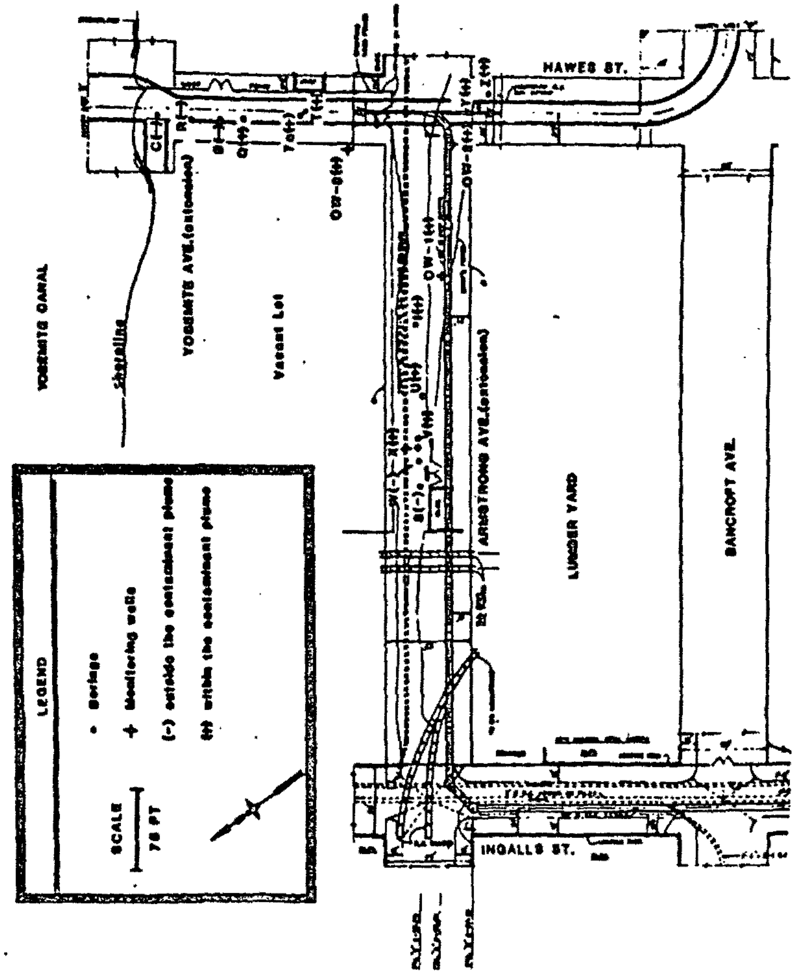

FIGURE 3-3 BORING AND MONITORING WELL LOCATIONS, ARMSTRONG AND HAWES

Based on preliminary investigations, the extent of the contamination appears to be limited to a 69,000 square foot area, and groundwater flow appears static. However, due to the floating product, groundwater gradient could not be determined. Figure 3-4 shows the probable contamination area. The area of greatest contamination appears to be near Observation Well OW-3. A site mitigation plan is necessary for this contaminated area before proceeding with sewer installation.

Various clean-up alternatives were considered and finally selected as is discussed in the following chapter.

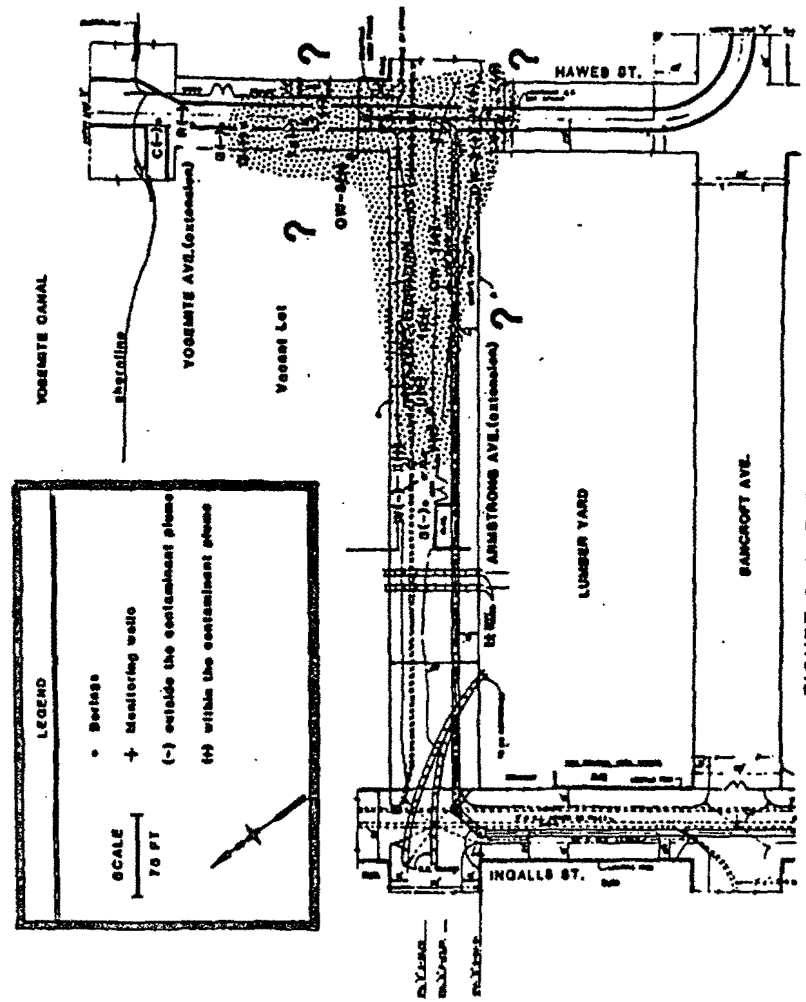

FIGURE 3-4 ESTIMATED EXTENT OF SUBSURFACE CONTAMINANT PLUME, ARMSTRONG AND HAWES

CHAPTER 4

REMEDIAL ACTION ALTERNATIVES

Remedial action alternatives were identified through a process that utilizes a trenching operation to reach the soil and groundwater contamination. The evaluation process began by identifying potential General Response Actions that might be taken in response to site conditions, and considering those actions with various available technologies. General response actions identified for this study include: 1) no action; 2) containment of contaminants on-site; 3) treatment of contaminants on-site, and 4) removal of contaminants for off-site treatment and/or disposal. These actions are not mutually exclusive but rather can be combined.

As no single, general response action is likely to provide an optimum cleanup evaluation, the most feasible combinations of specific technologies were combined into several alternatives which were compared to feasibility considerations. As a result of this evaluation, the following three alternatives were selected:

- Alternative 1 - install a narrow trench to several feet below groundwater, which would involve an excavation top width of 10-14 feet in lieu of shoring. Excavation to the Bay mud is also an option, but this would involve an excavation top width of 20-25 feet. Product would be skimmed off the trench and placed in 55 gallon drums for disposal to a Class I facility. Decanted water would be sent to the sanitary sewer. The trench would be located offset to where sewer installation begins. Disposal of the contaminated soil to an appropriate facility is also necessary.

- Alternative 2 - Same as option 1, except the trench would be located over the line where the sewer would be installed. A modification suggested for Alternative 2 (called 2b) is the installation of rock immediately upon trenching so as to eliminate the need for shoring or a wide trenching operation. Both Alternative 1 and 2 (and 2b) would be conducted prior to sewer installation.

- Alternative 3 - Same as Alternative 2, except the trenching would be conducted during the sewer construction. The shored construction trench would be built using conventional procedures and contaminated soil would be removed as the trench work progresses. Contaminated soil would be stockpiled separately. Noted that all three options will include removal of as much product from the observations wells as is feasible prior to the trenching operation.

REGULATORY REQUIREMENTS

Several Federal, State and local agencies are involved in regulating hazardous waste pursuant to both legislative and regulatory requirements. These regulations dictate what remedial action technology can be taken and how these actions are to be implemented. The following agencies regulate hazardous waste handling, treatment, and disposal operations:

- U.S. Environmental Protection Agency (EPA)
- U.S. Department of Transportation (DOT)
- California Department of Health Services (DHS)
- California Regional Water Quality Control Board (RWQCB)
- Bay Area Air Quality Management District (BAAQMD)

In addition, the City of San Francisco as operator of a Publically Owned Treatment Works, (POTW), serving the site, has regulatory power over wastewater discharges to the sanitary sewer system resulting from site activities.

The EPA regulates hazardous waste storage, treatment and disposal and the DOT regulates hazardous materials transportation in accordance with the Code of Federal Regulations (CFR) 40 and 49, respectively. The DHS also regulates the storage, treatment and disposal of hazardous waste in accordance with Articles 1 through 34 of Chapter 30, Title 22, of the California Administrative Code (CAC). The RWQCB protects the quality of waters of the State in accordance with the Porter-Cologne Water Quality Control Act. The RWQCB also regulates the discharge of pollutants to waters of the State with NPDES Permits as required by the Federal Water Pollution Control Act (Clean Water Act). Publicly Owned Treatment Works (POTW) regulate discharges to the sanitary sewer system. The discharge limits are based upon regulatory requirements as well as treatment standards. Discharges to a sanitary sewer must have prior approval from the POTW. The BAAQMD is a local regulatory agency that has authority to regulate discharges to the air from stationary sources in accordance with the California Health and Safety Code.

To minimize potential impacts to human health and the environment, discharge limits to surface water, groundwater, soil, and air have been established through various regulations. In addition to enforceable regulations, several exposure criteria have been established to protect human health, aquatic life, and

the environment. This will be submitted under separate cover in a <u>Health and Safety Plan.</u>

SCREENING FACTORS

Screening factors are used to evaluate potential remedial alternatives assembled from the various technologies that passed consideration. The purpose of these screening factors is to identify the alternative within each general response action category that best responds to site needs and concerns. Table 4-1 lists the screening factors and summarizes the rationale for these factors. These factors were considered when selecting the three above mentioned alternatives.

TABLE 4-1

DESCRIPTION OF SCREENING FACTORS

Screening Factor	Rationale/Significance
Effectiveness	Need for adequate and permanent remediation that allows future development and use of site.
Reliability	Need for proven technologies producing predictable results leading to documentable remediation.
Public Acceptance	Need for remedial strategy that is compatible with public awareness of problems and that inspires public confidence in effectiveness of measures.
By Products of Remedial Measures	Need for contaminant destruction or transfer to media that are more environmentally sound/manageable than those found on-site.
Institutional Factors	Need to obtain proper clearance, permits, variances, etc., from various agencies having local or regional jurisdiction.
Environmental and Public Health	Need for an overall remedial strategy that results in adequate site restoration while minimizing adverse impact on the environment and risk to public health.
Safety	Need for remedial technologies that do not generate safety problems as a result of their installation/operation.

GENERAL RESPONSE ACTIONS

As previously mentioned, general response actions can be grouped into four main categories: no action, containment, treatment, and removal.

The no action response would consist of continued monitoring of groundwater movement in and around the site, in addition to continuing analysis of environmental conditions. The primary objective of the no action option would be continued verification that no significant off-site migration of contaminants has occurred in the defined contamination area. Re-routing of the sewer would be necessary through the area, and therefore this is <u>not</u> an acceptable response.

The containment response would be comprised of actions intended to eliminate potential pathways for off-site movement of contaminants after sewer construction. This would include preventing or greatly reducing groundwater movement from the site, eliminating groundwater recharge to the site, and/or preventing off-site movement of surface contaminants from the site via runoff or air movement.

Containment responses can be classed as either active (or dynamic) and passive (or static). Active containment, which would apply to groundwater, involves pumping or otherwise conveying groundwater from an aquifer in order to change the normal direction and flow rate of groundwater movement. By continuously removing groundwater from a given area, groundwater flow in the vicinity is redirected toward the point of removal. The overall effect is that contaminated groundwater is prevented from moving off-site, and is thus effectively contained. A variation of this process would include recharge facilities strategically located to further aid in containing groundwater.

The active containment measures also include appropriate groundwater removal techniques that can be incorporated into treatment or removal response actions (see below).

Passive containment involves the placement of physical barriers around a contaminated zone in order to prevent or minimize vertical or horizontal movement. Off-site migration is prevented not by changing the direction and rate of migration of constituents, but by physically controlling their movement.

Although containment technologies focus on preventing waterborne migration of constituents (in either groundwater or surface runoff), soil contaminants are also effectively immobilized. The flow of water is the principal mechanism by which chemical constituents are released from soils, either by percolating through the vadose zone to the groundwater table or by conveying surface soil contaminants off-site in runoff. Thus, containment serves to isolate soils from waters that would otherwise spread contamination. It also prevents wind-blown migration of contaminated surface soils. Due to the various neighboring property owners, the nature of the Soil Analyses Code, and the non-definition of the contamination plume, containment is <u>not</u> a feasible response action. Containment is also not feasible due to excavation through the bay mud during construction.

The treatment response actively alters, removes, or destroys chemical constituents present in site soils or groundwaters, with the ultimate goal of reducing contaminant concentrations to levels considered "acceptable" by regulatory agencies having jurisdiction. Treatment approaches can be grouped into the following three main categories:

- off-site treatment: soils and groundwaters are physically removed and transported to facilities located off-site where they are subsequently treated. Treated materials would typically be disposed of off-site, and clean replacement fill brought on-site.
- on-site treatment: soils and groundwaters are physically removed but treated on-site by mobile or "package" treatment units. Depending on the nature of the treatment method, the treated soils may or may not be returned to the site, while treated groundwaters can either be recharged into the aquifer or disposed of into a sanitary or a storm sewer system. Any by-products of the treatment processes, if considered hazardous, would be removed and taken to an off-site facility for additional treatment and/or disposal.
- in-situ treatment: soils and groundwaters are treated in place. Some disturbance of these materials during treatment may occur, but no bulk movement within or from the site is undertaken. Hazardous by-products that may be generated would be treated and/or disposed of off-site.

In general, treatment involves biological, chemical physical separation or thermal destruction of target constituents, alteration of constituents to less toxic forms, or removal of constituents from the contaminated medium (i.e., soil or groundwater) and concentration onto another medium (e.g., a solvent, granular activated carbon, etc.) more suitable for subsequent treatment and/or disposal. the treatment of soil and groundwater by one or more of these combinations <u>is</u> an acceptable response action.

The final general response action to be considered is removal of contaminated materials and their disposal at an approved off-site facility. The degree of removal could consist of complete excavation of the uppermost 15 feet of contaminated soil and removal of the groundwater. Removal of contaminated material <u>is</u> also an acceptable response.

The four general response actions outlined above are not mutually exclusive. A final remedial strategy developed for a given site may include components from two or more general response categories as is the case here. The three alternatives mentioned above were selected after consideration of all technology options, regulatory considerations, the screening factors listed in Table 4-1, and the feasibility of the four general response actions. The next step is selection of an alternative for recommendation.

CHAPTER 5

RECOMMENDED ALTERNATIVES

The following is a discussion of the advantages and/or disadvantages of each alternative, with a general cost breakdown for each one. The section concludes with our recommendation that is the most feasible, cost effective method for remediation of the contaminated area.

Alternative 1 - The offset of the proposed trench line may cause potential problems with easements and right-of-way permission. Portions of the proposed trench will be encroaching onto private property, some of which were probably a contributing factor to the original contamination problem. The use of private property easements may also add to the cost of the construction if payment and/or additional clean-up after construction is necessary.

Alternative 2 - This appears to be the most feasible, due to the attraction of trenching along the line of the proposed sewer. The excavation will not be disruptive to additional areas, and no private property owner permission will be necessary since the sewer line will be installed along City easement. Alternative 2b has all the advantages of Alternative 2, but does have the added disadvantage of adding potential disposal costs when the contaminated rock must be removed. The principal advantage is elimination of either shoring or the wide trench.

Alternative 3 - This option leaves open the possibility of time delay, if the trenching is left until the construction of the sewer. With the hazardous constituents believed present, it may be imperative to conduct additional sampling and/or monitoring once the contamination is exposed during excavation. This could mean a stop-work order if safety procedures are compromised. If this occurs during the installation of the sewer pipe, rather than before, a serious work delay could result.

Cost Estimate [1]

Alternative 1	$90,000
Alternative 2	$65,000
Alternative 2b	$55,000
Alternative 3	$100,000

[1] Costs do not include disposal of contaminated soil or creosote.

RECOMMENDATION

If creosote waste is accepted as a designated waste, then Alternative 2b should be selected. If creosote waste is classified as a hazardous waste, then Alternative 2 should be selected. We also recommend that whatever alternative is used, that Baker tanks be on-site as a water-holding container. Residue product may then be skimmed off and disposed accordingly.

SITE HISTORY REPORT
YOSEMITE AND FITCH OUTFALLS CONSOLIDATION
GRIFFITH PUMP STATION AND FORCE MAINS

1. Block and lot numbers and address of the proposed project.

   See blue prints entitled General Plans and Notes (File No. 47713) for Yosemite and Fitch Outfalls Consolidation, and blue prints entitled Griffith Pump Station and Force Mains (Sheet A and B) for Griffith Street portion.

   The blocks contingent to this project are notated on the enclosed map from the Sanborn Company, entitled Sanborn Block Map.

2. The Building Application Number assigned to the project.

   Not applicable. No building permit required.

3. The names, addresses and phone number of the following:

   A. Contractor - Homer J. Olsen, 1275 Michigan St., San Francisco, California 94107, 415/824-1440

   B. Property Owner - City of San Francisco

   C. Project Coordinator - Mr. Bob Swanstrom, 770 Golden Gate Ave., 3rd floor, San Francisco, California 94102 415/558-2131

   D. Architect - Verl Hall, San Francisco City Architect's Office, 45 Hyde Street, San Francisco, California 94102 415/558-4527

   E. Site History Preparer - Norman L. Grib, Ph.D.,P.E., 2655 Franklin Street, San Francisco, California 94123 415/928-5384

4. The education and experience of the site history preparer.

   Ph.D. Chemical Engineering
   Registered California Chemical Engineer. Fifteen years experience in environmental engineering. Five years experience in hazardous wastes area. Involved in site history analysis for past two years.

5. Provide a plot map of proposed project.

   See attached blue prints entitled: General Plans and Notes (File No. 47713)
   Griffith Pump Station and Force Main (Sheet
   Griffith Pump Station and Force Main (Sheet

   The location of proposed sampling bores are indicated in red.

5. Cont'd.

   Holes will be drilled to the bottom of the proposed excavation (Varies to a maximum of 32 feet) or the the top of the bay mud layer. If analysis reveal chemicals that may permeate bay mud, drilling through the bay mud will be done.

   The location of structural core samples are given in Plate 1 Geotechnical Map, Geotechnical Investigation, February, 1985.

6. Statement from Soil Engineer that the result of the proposed sampling program is in his judgement representative of the proposed excavation site conditions.

   See last paragraph of letter from Daniel Hinrichs, Principal Engineer, ERM-West Co., dated November 3, 1986.

7. Scope and extent of soil excavation proposed.

   A. Lineal foot dimensions: Approximately 3500 feet of 10 foot wide trench, approximately 4200 feet of 26 foot wide trench and approximately 300 feet of 46 foot wide trench. Depth of trench will vary depending on ground elevation. Average depth will be approximately 25 feet.

   The excavation for the pump station will be approximately 50 feet wide, 90 feet in length, and to a depth of approximately 30 feet.

   Details of length and width of the trench are shown on the plot maps mentioned in item #5 above. Width of trenches have been estimated by adding 6 feet to sewer box widths. Width of the force main on Griffith and the sewer pipe on Ingalls has been estimated at 10 feet in terms of excavation.

   B. Any excavation during all phases of construction.

   See above.

   C. All landscaping planned.

   See attached Yosemite and Fitch Outfalls Consolidation (file 47756) drawing: Site Plan, Berm Construction Plan, Planting Schedule and Plan.

   See attached Griffith Pump Station and Force Mains (file 56283) drawing: Planting Plan

   D. The relationship of the proposed excavation site to the total project.

   The proposed project is required to provide transport/storage facilities which would reduce overflows from approximately 46 per year to an annual average of one. It would transport wet

7. D. Cont'd.

and dry weather flows to a treatment plant.

The proposed project would collect the flows from the existing Fitch Street, Griffith Street, and Yosemite Avenue outfalls and convey them to the proposed 120 million gallon a day Griffith Pump Station. This station would than pump both wet weather and dry weather flow to the Southeast Water Pollution Control Plant for treatment.

8. Detailed land-use research for the excavation site and adjacent land.

A. The following Sanborn Maps were used:

1985 (Planning Department)
1973 (Recorders Office)
1965 (Bancroft Library)
1951 (Heritage Foundation)
1950 (U.C. Main Library)
1929 (Bancroft Library)
1915 (U.C. Main Library)

In all cases Volume 8, Plate Nos. 834, 836, 838, and 897 were used.

Other references used: Chemical Process Industries, Norris Shreve, 3rd Edit.,1967, McGraw-Hill,N.Y.

Industrial Waste Treatment Practice, E.F. Eldridge, 1st Edit.,1942, McGraw-Hill Book Co.,N.Y.

B. Type of land uses conducted on the areas under study.

See Table I and indicated Sanborn Maps

The vacant areas indicated on the map are land that has been filled but not utilized. At page 8 of the Geotechnical Investigation, the fill as exposed by the structural borings contains wood, boulders, large blocks of construction debris brick and concrete slabs.

TABLE I

SAMPLE LOCATIONS

SAMPLE NO.	LOCATION	REASON **
*1.	Thomas and Hawes	Tallow company and Curled Hair Fac (1913)
*2.	Thomas between Griffith and Hawes	Manufacture of metal specialties fo reinforcing concrete (1965)
3.	Hawes between Yosemite and Armstrong	Lumber Yard (1973)
4.	Armstrong between Hawes and Ingalls	Lumber storage (1973)
5.	Yosemite between Hawes and Ingalls	Lumber manufacturing (1973)
*6.	Thomas and Hawes	Hazardous Waste/Drum recycler (1985
*7.	Thomas and Hawes	Very oily auto repair yard (1985)
8.	Hawes between Van Dyke and Underwood	Metal scrap yard (1985)
*9.	Carroll and Ingalls	Chemical Manufacturing (1985)
*10.	Carroll and Ingalls	Industrial Chemical Warehouse and Auto and Truck Repair (1985)
1A.	Griffith between Shafter and Revere	Norton Wool Co. Later Legallet Wool Co. (1950)
1B.	Griffith between Revere and Quesada	Legallet Tanning Co. (1950)
1C.	Griffith between Quesada and Palou	Wood processing, fire place logs (19

* Outside Eddy Red Line Boundary

** Data facility first appears in Sanborn Map book

These are the constituents required to be analyzed by the San Francisco Municipal Code, Chapter 10, Article 20 (Soils Analyses Code). Additionally, we recommend that Samples No. 7 and 8 are also analyzed for creosote, pentachlorophenol, and phenol. These sample points are located by lumber yards where wood may have been treated with a preservative.

Composite soil samples will be tested. Individual samples will be preserved in the event that more information is needed or contamination is found. Holes will be drilled to the botton of the proposed excavation (varies to a maximum of 32 feet) or to the top of the bay mud layer. We may also drill through the bay mud in several locations if further investigations reveal that neighboring industries produce(d) chemicals that may permeate bay muds. Mr. Grib is to provide a list of the possible chemicals present from the nearby businesses.

If all results are less than allowable limits as noted in the Soil Analyses Code, then a report will be prepared stating these results. If limits are exceeded, additional testing will be done. The extent of the testing will depend on original results and location of problem(s). A determination will also be required as to the means of cleanup. All sampling and analyses will be conducted according to approved methodology as stated in the Soils Analyses Code.

The result of the proposed sampling program is, in my judgment, representative of the proposed excavation site conditions. Upon completion of this work and review of the results, I will repeat the above statement except the word proposed will be deleted.

If you have any questions, please call me.

Sincerely yours,

ERM-West

Melita Elmore (for)

Daniel Hinrichs
Principal Engineer

DH/lal/192

cc: Norman Grib
Tom Ikesaki
Melita Elmore

ERM-West
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Reply To:

November 4, 1986 Rancho Cordova

Mr. Steve Medberry
Division Engineer
Industrial Waste Division
750 Phelps Street
San Francisco, CA 94124

SUBJECT: Budget Estimate for Hazardous Waste Investigation
Yosemite and Fitch Outfalls Consolidation

Dear Steve:

This is written as an addendum to our November 3, 1986, proposal for a hazardous waste investigation for the Yosemite and Fitch Outfalls Consolidation.

ERM-West will invoice for time and material expenses for this project, and estimates that the project will be approximately $35,000. This is based on the proposed sampling locations referred in our November 3 letter to you.

We estimate that standard laboratory analysis turn-around will be 2-3 weeks. If a faster turn-around is needed, a premium will be added to our budget estimate. We estimate that an increase of $5,000 will be necessary for a rush turn-around of 1-1 1/2 weeks.

If additional information is needed, please feel free to call me.

Sincerely,

ERM-West

Melita Elmore (for)

Daniel J. Hinrichs,
Principal Engineer

DJH/lal/192

ATTACHMENT 3

TITLE 22
LIST OF ORGANIC PERSISTANT
AND
BIOACCUMULATIVE TOXIC SUBSTANCES
AND
THEIR SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC)
AND
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC) VALUES

SUBSTANCE	STLC mg/l	TTLC WET-WEIGHT mg/kg
Aldrin	0.14	1.4
Chlordan	0.25	2.5
DDT, DDE, DDD	0.1	1.0
2,4 Dichlorophenoxyacetic acid	10	100
Dieldrin	0.8	8.0
Dioxin (2,3,7,8-TCDD)	0.001	0.01
Endrin	0.02	0.2
Heptachlor	0.47	4.7
Kepone	2.1	21
Lead compounds, organic	-	13
Lindane	0.4	4.0
Methoxychlor	10	100
Mirex	2.1	21
Pentachlorophenol	1.7	17
Polychlorinated biphenyls (PCBs)	5.0	50
Toxaphene	0.5	5
Trichloroethylene	204	2,040
2,4,5-Trichlorophenoxypropionic acid	1.0	10

TITLE 22
LIST OF INORGANIC PERSISTANT
AND
BIOACCUMULATIVE TOXIC SUBSTANCES
AND
THEIR SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC)
AND
TOTAL THRESHOLD LIMIT CONCENTRATION (TTLC) VALUES

SUBSTANCE	STLC mg/l	TTLC WET-WEIGHT mg/kg
Antimony and/or antimony compounds	15	500
Arsenic and/or arsenic compounds	5.0	500
Asbestos	-	1.0 (as percent)
Barium and/or barium compounds (excluding barite)	100	10,000***
Beryllium and/or beryllium compounds	0.75	75
Cadmium and/or cadmium compounds	1.0	100
Chromium (VI) compounds	5	500
Chromium and/or chromium (III) compounds	560	2,500
Cobalt and/or cobalt compounds	80	8,000
Copper and/or copper compounds	25	2,500
Fluoride salts	180	18,000
Lead and/or lead compounds	5.0	1,000
Mercury and/or mercury compounds	0.2	20
Molybdenum and/or molybdenum compounds	350	3,500
Nickel and/or nickel compounds	20	2,000
Selenium and/or selenium compounds	1.0	100
Silver and/or silver compounds	5	500
Thallium and/or thallium compounds	7.0	700
Vanadium and/or vanadium compounds	24	2,400
Zinc and/or zinc compounds	250	5,000

*STLC and TTLC values are calculated on the concentrations of the elements, not the compunds

**In the case of asbestos and elemental metals, applies only if they are in a friable, powdered or finely divided state. Asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

***Excluding barium sulfate.